

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2002		2. REPORT TYPE		3. DATES COVERED 00-00-2002 to 00-00-2002	
4. TITLE AND SUBTITLE Information Dominance: Why the Army is Interested in Space Control				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Army Space & Missile Defense Command, Army Forces Strategic Command, Redstone Arsenal, AL, 35809				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 2	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Information Dominance: Why the Army is Interested in Space Control

By Doug Burdette

The performance capabilities of current micro circuitry technologies and the rapid maturation and proliferation of their fabrication processes have resulted in a virtual worldwide availability of cost effective, highly capable and miniaturized communication products and services to include a plethora of miniaturized communication units (voice and/or data) with multiple spectrum access and multiple high-speed data management modes. In addition, large regional communication support systems have emerged to support these communication products in even the most remote areas around the globe.

For the radio frequency communication links, regional systems facilitate highly reliable communication through repeater/boosting and netted station functions that often incorporate autonomous signal filtering for improved clarity and auto path management (trunking) of data for optimal throughput and speed. In addition, many current systems are emerging with sophisticated interface capabilities into existing hard wire communication architectures to expand reach into earlier generation systems at remote locations and provide the flexibility to handle diverse data formats.

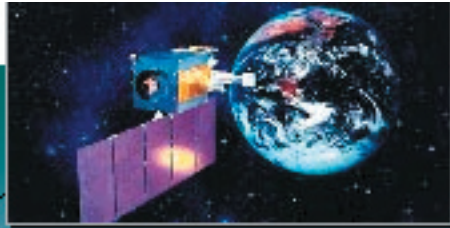
Refinements to existing hardwire communication systems also reflect technology advancements with improved interface speeds and the addition of fiber optic or micro-weave link segments to enhance data transfer volume and speed. Another advancement which plays a significant role in the communication equation is the maturity and diversification of battery technology. Current battery technologies provide relatively high energy density in small rigid or conformal packages that are virtually insensitive to thermal extremes and provide highly repeatable deep cycle energy yield. These factors have greatly contributed to the current availability of

a global, readily accessible, non-military communication option for virtually anyone with a modest investment. This global communication capability, though primarily terrestrial based, has logically evolved to a great level of dependence on and utilization of Space-based relay assets. These Space assets, in utilizing the aforementioned maturation of micro circuitry and battery technologies, have been able to achieve levels of performance, automation, and an orbit reliability that make them cost effective ventures in today's highly competitive communication markets.

The ability to accomplish cost effective, multiple platform launches out to desired orbital altitudes by commercial launch consortiums has also greatly contributed to the growing presence of commercial communications in Space. These factors combine to produce a multi-path global communication climate of unprecedented reach that is highly capable, flexible, and available to virtually everyone on a 24-hour basis in any geographic region.

The Future Force

The conceptual evolution of the future Army Force is beginning to reveal a logical need for significantly enhanced flexibility in force structure and functional composition. The mere range of response possibilities and conditions for perceived future conflicts suggest that force flexibility and adaptability will be an up front issue during planning, force constitution, deployment and conflict execution/resolution. The need to establish absolute information dominance is a great consideration during all phases of the conflict. It is worth noting that information dominance in itself is not the end-all goal but rather a key contributor in establishing decision superiority at all points in the conflict time line. The



Gain Information Dominance



early and continued establishment of information dominance is a distinct force effect multiplier for all levels of conflict from surgical micro level special operation forces incursions to full blown theater level conflicts at the corps/joint forces level.

Hostile Space-based military communication and intelligence assets alone present notable challenges for establishing and maintaining information dominance and force security. This urgency and concern is compounded when considering the rapidly evolving, highly capable commercial Space-based surveillance and communication assets that are proliferating outside of traditional military channels and are readily available and accessible through global reach Internet communication links. This ready access to unchecked communication and surveillance sources provides a notable enhancement opportunity for hostile human intelligence threat sources. This concern is exemplified when armed incursions are envisioned into static conflict scenarios such as static peace keeping or in rapid dynamic scenarios involving clandestine surgical special operations where security and stealth are tantamount.

The aggregation of these factors presents a clear and logical conclusion that accomplishing information dominance for the future Army force will depend on how effectively and precisely the Space data links and assets are denied to hostile utilization.

The Way Ahead

Developing key capabilities today for the future Army force requires adhesion to the operational principals and characteristics that are now being developed for that force. Simply put — make it compact, light, lean and mean. Mobility, deployability, supportability, extreme

range effectiveness, and surgical precision are guiding principles. Accomplishing information dominance in a precise selective fashion will require techniques and technology applications which afford surgical controlled target responses and encompass a range of selective Space data denial effects from reversible to permanent. Integrating these technology capabilities into the possible vehicle formats of the future Army forces presents engineering challenges that are considered accomplishable within the identified development window.

The investigation of directed energy technologies in this mission area is a logical conclusion when considering the functional physics of the threat itself. Directed energy options open up an appealing set of concept possibilities to explore where Army technology investments and success have shown promise and could be leveraged and focused towards specific technology performance goals. Directed energy applications on the future battlefield will require advanced management and automation measures as well as system level compatibility with the common logistics support picture. The way ahead for accomplishing battlefield information superiority and, ultimately, decision superiority for future Army forces clearly lies in the leveraging and utilization of Army Technology accomplishments.

Doug Burdette serves in the U.S. Army Space and Missile Defense Command Space Technology Directorate. His professional experience includes Underground Nuclear Testing at the Nevada Test Site, development of advanced very large scale integration technologies and advanced concepts for ground-based interceptors and Space systems, and extensive research and development involving Special Programs. He served on advisory panels to the Office of the Under Secretary of Defense on joint service issues and is a certified Strategic Arms Reduction Treaty Inspector under the Defense Intelligence Agency.